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PRE-APPEAL BRIEF REQUEST FOR REVIEWDocket Number (Optional)
1316K-000028/NP

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Application Number
10/537,566Filed
11/09/2005First Named Inventor
Christopher Paul Revill, et al.On October 6, 2008

Signature

Art Unit
3616Examiner
Karen J. AmoresTyped or printed name Michael J. Schmidt

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)☒ attorney or agent of record.
Registration number 34,007.☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____
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Typed or printed name(248) 641-1600
Telephone numberOctober 6, 2008
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

Application No.: 10/537,566
Filing Date: 11/09/2005
Applicant: Christopher Paul Revill, et al.
Group Art Unit: 3616
Examiner: Karen J. Amores
Title: HYDRAULIC SUSPENSION SYSTEM
Confirmation No.: 3569
Attorney Docket: 1316K-000028/NP

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW ARGUMENTS

Sir:

Applicants are filing the following arguments in support of our Pre-Appeal Brief Review Request. In the Final Office Action mailed June 5, 2008 and in the Advisory Action mailed September 15, 2008, Claims 1, 4, 6-12, 17, 35 and 36 are rejected under 35 USC § 103(a) as being unpatentable over Heyring, et al. (USP 6,270,098) in view of Heyring, et al. (USP 6,761,371). Claim 18 is rejected under 35 USC §103(a) as being unpatentable over Heyring '098 and '371 as applied to Claims 6 and 17 above, and further in view of Kobayashi, USP 7,210,688. Applicants respectfully traverse this rejection. Independent Claims 1, 6 and 7 state that the vehicle is primarily supported by the vehicle resilient support means which is separate from the damping and stiffness system. Thus, the damping and stiffness system of the present invention provides little or no support for the vehicle, its entire function is to provide damping and stiffness.

The Examiner states that Heyring '098 does not disclose a front and rear resilient support means and the Examiner looks to Heyring '371 to teach the support means (17). Applicant respectfully disagrees with the Examiner. In Heyring '098 the load distribution system itself (damping and stiffness system) provides the resilient support means through hydraulic rams as the primary support for the vehicle. Thus, there is no incentive to combine the separate resilient support means from Heyring '371 because Heyring '098 already includes primary resilient support means. In the Advisory Action the Examiner states that suspension systems with an additional or separate

resilient means such as a coil spring, leaf spring, or shock absorber are old and well known in the art. Applicant agrees that coil springs and leaf springs support the vehicle's weight but once support for the vehicle is provided, there is no reason and clearly no incentive to add an additional or second support for the vehicle. If a vehicle has coil springs supporting its weight, a person skilled in the art would not add another or second set of coil springs to support the vehicle's weight because it is already being supported by the first set of coil springs. It should be noted that shock absorbers do not support the vehicle's weight; they provide damping for the movement of the suspension system.

As stated in Heyring '098 in column 1, line 16-34, the invention in Heyring '098 is an improved construction of the load distribution unit developed by Applicant which is described in PCT/AU95/00096. US 6,010,139 (of record) is the U.S. filing for PCT/AU95/00096 and in column 1, lines 23-28, US 6,010,139 defines that the suspension system supports the vehicle body and comprises ram means between each wheel and the vehicle body. Thus, the load distribution unit in US '139 provides the primary support for the vehicle body and thus, the load distribution unit in US '098 also provides the primary support for the vehicle body and there is no incentive to add an additional or second support such as the separate resilient means from Heyring '371.

The present specification supports this position of the Applicants. On page 1, lines 5-21 of the published PCT application, the specification discusses the 6,010,139 patent and the 6,270,098 patent, both of which are assigned to Kinetic, Limited, the assignee of the present invention. These prior art documents are incorporated by reference into this present application. The specification states "This system [the '139 patent] supports the weight of the vehicle, so as the loads on the vehicle change, the volume of fluid in each of the six volumes in the system must be adjusted." Thus, a person skilled in the art would know that the rams of the '098 reference support the vehicle weight and there would be no incentive to combine Heyring '371 with Heyring '098 to provide a second or redundant support for the vehicle.

The present invention utilizes separate support means which provide the primary support for the vehicle. This feature is detailed in the PCT/AU2003/001637 Publication (the basis for this US application) on page 8, line 22 to page 9, line 29 and page 14, line 23 to page 15, line 7. Here, it

states that the primary advantage is that the hydraulic system does not support significant weight of the vehicle which means that each hydraulic fluid volume does not need to be individually controlled to a high-pressure which is a major cost saving over the prior art. This also allows the hydraulic system to be engineered for a lower pressure which also significantly reduces cost and size of components.

Heyring '098 is owned by Kinetic Ltd (now Kinetic Pty Ltd – "Kinetic"). The invention defined in the present application is an improvement over that '098 technology. Kinetic is the leading proponent in this field of interconnected hydraulic suspension systems and damping systems, and developed the present invention as a technically different system to that of '098, with associated different benefits and advantages.

The Examiner maintains that '098 could be provided with separate resilient support means from Heyring '371 (also by Kinetic) to meet the features of present Claim 1.

The prospect of a system according to '098 having separate resilient support means is irrational given that the system of '098 itself supports the vehicle body without separate resilient support means (the system hydraulic rams supporting the body - as previously argued). The hydraulic system of '098 provides full support for the vehicle chassis/body, as demonstrated in that document by the rams 1-4 in Figure 1 having broad piston rods, and the relative difference in effective piston area in the compression and rebound chambers thereof. Importantly, reference at column 1, lines 24-25 of '098 incorporates by reference PCT/AU95/00096 (published as WO 95/23076 and US 6,010,139). This reference is directed to a hydraulic suspension system with a load distribution unit. The suspension system is arranged to support the vehicle body, as clearly disclosed at page 6, lines 13-15 of the PCT document WO 95/23076 *"the hydraulic rams may be of either double or single acting type. In either arrangement, the chambers of the rams that are providing the support for the vehicle are connected to the balance means."* '098 seeks to provide an improved load distribution unit for such a system, as per column 1, lines 29-34 of '098.

As mentioned above, the system of '098 itself already supports the vehicle body '098. The addition of further supports in the form of resilient support means, such as coil or leaf springs, adding

unnecessary weight and cost to the vehicle, with compromise in functionality, would not be relevant or sensible.

It is not normal to use a first support means for the vehicle body and a second additional support means. If coil springs are supporting the vehicle, leaf springs or additional coil springs are not required. The support is already there.

Contrary to the Examiner's point of view in the recent Advisory Action, shock absorbers are not resilient supports. Shock absorbers are used in combination with coil or leaf springs as they provide completely separate functions – shock absorbers provide damping with negligible support or heave stiffness and the coil or leaf springs provide support and heave stiffness with negligible damping.

As the hydraulic system of '098 provides all of the support of the vehicle body, not only is there no motivation to provide additional support means. The hydraulic system would not operate if simply coil springs or leaf springs were added. The hydraulic system would need to be completely redesigned to reduce its functionality (i.e. remove virtually all of the heave stiffness and supporting push out force). This is supported by the final paragraph of Claim 1 in which the vehicle resilient support means functionally separate from the damping and stiffness system.

This reduced functionality of the hydraulic system is fundamental to the new features and benefits provided by the present invention over '098. Unless '098 is redesigned to remove virtually all of the push out force, the ratio between roll and heave stiffness is insufficient to enable the hydraulic system to provide sufficient roll stiffness without providing a significant push out force and heave stiffness.

Thus, the key novel and inventive feature of the hydraulic system of the present invention is that "...the vehicle is primarily supported by the vehicle resilient support means which is functionally separate from the damping and stiffness system" i.e. the hydraulic systems provides minimal/negligible supporting push-out force or heave stiffness, which in turn brings a range of benefits not possible with '098:

- powered fluid pressure supply system not required to maintain vehicle at ride height as temperature changes, etc.
- a very high ratio of heave to roll (and pitch) stiffness meaning that roll and pitch stiffness rates can be adjusted independent of load (in '098 they vary with load but are fixed for any given load), or the control system can be simplified to remove a significant portion of system cost.
- the hydraulic system components can have a lower pressure rating, lighter weight and reduced cost compared to those of '098.

'098 teaches an improved load distribution device for a hydraulic suspension system. The system being of the type arranged to support the vehicle body (per WO 95/23076 incorporated into '098).

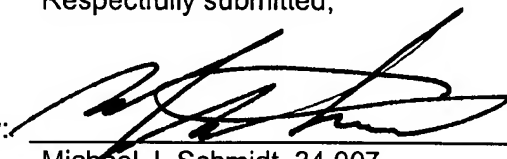
There is no motivation for the relevant skilled person to provide additional primary resilient supports for the vehicle body when the hydraulic suspension system of '098 already itself supports the body. '098 does not teach or suggest the use of resilient support means to support the vehicle body.

Whilst '371 discloses separate resilient support means, there is no motivation within '098 and '371 to combine those documents given the differing types of system.

Thus, Applicant believes Claims 1, 6 and 7, as pending patentably distinguish over the art of record. Likewise, Claims 4, 8-12, 17 and 18 which ultimately depend from Claim 1 or Claim 6 are also believed to patentably distinguish over the art of record. Applicants believe Claims 35 and 36 were listed by mistake because these claims depend from Claim 7 which, along with Claims 35 and 36, was indicated as being allowable.

Respectfully submitted,

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